

2035 LRTP – Transportation Options Evaluation Measures

Purpose of Evaluation Measures

Evaluation Measures provide a general indicator of a transportation system from a variety of perspectives such as mobility, travel time, congestion, mode choice, air quality, and financial. The measures are not specific to a particular travel corridor but instead cover the entire transportation system, and therefore are useful for comparing the efficiency and effectiveness of the different transportation options. Most of the data used for calculating the Evaluation Measures comes from the Triangle Regional Model, which is a travel demand model that forecasts future travel statistics based on a set of assumptions concerning the highway network, transit service and other transportation facilities.

Evaluation Measures Tables

The table in this section presents the Evaluation Measures for the Existing plus Committed network and the four transportation options, including:

- Bus Transit;
- Commuter Rail;
- Rail Transit; and,
- Light Rail Transit.

The column in the table designated as E+C indicates Existing plus Committed. The E+C is composed of a transportation network of the existing and committed highway and transit facilities, and the 2035 socioeconomic data (i.e., population and employment in the year 2035). Thus, the E+C serves as a benchmark for comparing how much the performance measures improve with the transportation investments in the different options.

DCHC MPO -- 2035 LRTP Transportation Options -- Evaluation Measures

ID	Measures			Fiscally Constrained Options				Percent change from 2035 E+C				
		2005	2035 E+C	Bus Transit	Commuter Rail	Rail Transit	Light Rail Transit	Bus Transit	Commuter Rail	Rail Transit	Light Rail Transit	
1	Performance Measures											
1.1	Total VMT (daily)	10,673,382	17,397,077	17,711,125	17,354,800	17,644,889	17,630,140	2%	0%	1%	1%	
1.2	Total VHT (daily)	233,474	459,072	402,534	395,009	401,867	401,643	-12%	-14%	-12%	-13%	
1.3	Average Speed by Facility (miles/hour)											
1.3.1	- Freeway	62.3	57.1	61.0	61.3	60.9	60.9	7%	7%	7%	7%	
1.3.2	- Arterial	40.2	35.5	39.5	39.4	39.3	39.3	11%	11%	11%	11%	
1.3.3	- All Facility	50.1	44.6	49.4	49.4	49.3	49.4	11%	11%	11%	11%	
1.4	Peak Average Speed by Facility (miles/hour)											
1.4.1	- Freeway	61.0	54.2	59.5	59.8	59.3	59.4	10%	10%	9%	10%	
1.4.2	- Arterial	39.3	33.6	38.5	38.5	38.3	38.2	15%	15%	14%	14%	
1.4.3	- All Facility	49.1	42.2	48.0	48.1	48.0	48.0	14%	14%	14%	14%	
1.5	Average Travel Time - All Trips	14.9	17.2	16.3	16.2	16.2	16.2	-5%	-5%	-6%	-6%	
1.6	Average Travel Time - Work Trips	19.6	25.8	23.0	23.0	23.0	23.0	-11%	-11%	-11%	-11%	
1.7	Peak Average Travel Time - All Trips	16.71	20.5	18.74	18.72	18.69	18.7	-9%	-9%	-9%	-9%	
1.8	Hours of Delay (daily)	27,402	112,862	60,669	58,589	61,794	61,863	-46%	-48%	-45%	-45%	
1.8.1	CV Hours of Delay (daily)	1,178	4,580	2,673	2,529	2,690	2,694	-42%	-45%	-41%	-41%	
1.9	Percent of VMT experiencing congestion - All Day											
1.9.1	- Freeway	1.50%	5.80%	1.40%	1.50%	1.50%	1.50%	-76%	-74%	-74%	-74%	
1.9.2	- Arterial	2.10%	9.20%	3.20%	3.20%	3.40%	3.50%	-65%	-65%	-63%	-62%	
1.9.3	- All Facility	1.40%	6.40%	1.90%	1.90%	2.00%	2.00%	-70%	-70%	-69%	-69%	
1.10.	Percent of VMT experiencing congestion - Peak											
1.10.1	- Freeway	2.60%	10.50%	2.10%	2.20%	2.20%	2.20%	-80%	-79%	-79%	-79%	
1.10.2	- Arterial	3.40%	13.80%	4.70%	4.70%	4.80%	4.90%	-66%	-66%	-65%	-64%	
1.10.3	- All Facility	2.40%	10.40%	2.80%	2.80%	2.80%	2.80%	-73%	-73%	-73%	-73%	
1.10.4	Degree of congestion (V/C >1) on designated truck routes	2.10%	8.40%	2.40%	2.40%	2.60%	2.60%	-71%	-71%	-69%	-69%	
1.10.5	Degree of congestion (V/C >1) on facilities w/bus routes	2.60%	8.70%	2.30%	2.10%	2.10%	2.20%	-74%	-76%	-76%	-75%	
2	Mode Share Measures											
2.1	Number Mode Choice - <u>All Trips</u>											
2.1.1	- Drive alone (single occupant vehicle -SOV)	1,010,192	1,660,787	1,652,733	1,654,844	1,641,871	1,639,296	0%	0%	-1%	-1%	
2.1.2	- Carpool (Share ride)	687,217	1,095,943	1,105,760	1,103,364	1,098,912	1,096,781	1%	1%	0%	0%	
2.1.3	- Bus	44,815	69,664	88,606	86,461	85,764	86,963	27%	24%	23%	25%	
2.1.4	- Rail	0	0	0	1,724	12,146	14,914					
2.1.5	- Non-Motorized (Bike and Walk)	133,412	206,552	206,832	206,832	210,153	210,153	0%	0%	2%	2%	
2.2	Number Mode Choice - <u>Peak Hours</u>											
2.2.1	- Drive alone (single occupant vehicle -SOV)	515,049	834,496	834,691	835,277	827,961	827,303	0%	0%	-1%	-1%	
2.2.2	- Carpool (Share ride)	352,438	550,209	558,697	557,204	554,489	553,819	2%	1%	1%	1%	
2.2.3	- Bus	23,440	35,228	47,713	46,654	44,892	44,859	35%	32%	27%	27%	
2.2.4	- Rail	0	0	0	1,724	7,397	8,932					
2.2.5	- Non-Motorized (Bike and Walk)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2.3	Number Mode Choice - <u>Non Work Trips</u>											
2.3.1	- Drive alone (single occupant vehicle -SOV)	670823	1098746	1,090,147	1,091,468	1,082,813	1,081,093	-1%	-1%	-1%	-2%	
2.3.2	- Carpool (Share ride)	627686	998378	1,009,293	1,007,425	1,002,928	1,001,260	1%	1%	0%	0%	
2.3.3	- Bus	32458	53261	62,741	60,879	60,446	61,069	18%	14%	13%	15%	
2.3.4	- Rail	0	0	0	1,229	8,956	11,317					
2.3.5	- Non-Motorized (Bike and Walk)	129042	199646	199,914	199,914	203,170	203,170	0%	0%	2%	2%	
2.4	Daily Bicycle and Pedestrian Trips	133412	206552	206,832	206,832	210,153	210,153	0%	0%	2%	2%	

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Transportation Options -- Evaluation Measures

ID	Measures	2005		2035 E+C		Fiscally Constrained Options				Percent change from 2035 E+C			
						Bus Transit	Commuter Rail	Rail Transit	Light Rail Transit	Bus Transit	Commuter Rail	Rail Transit	Light Rail Transit
3	Transit Measures												
3.1	Average Weekday Transit Ridership (Whole region)												
3.1.1	- TTA (Including Rail)	3,494	4,900	11,943	17,855	30,590	33,074	144%	264%	524%	575%		
3.1.2	- CAT	12,931	22,874	32,865	32,284	32,940	33,104	44%	41%	44%	45%		
3.1.3	- CHT	30,048	44,990	53,792	55,088	58,965	62,911	20%	22%	31%	40%		
3.1.4	- DATA	13,691	23,312	55,210	49,417	55,154	55,381	137%	112%	137%	138%		
3.1.5	- NCSU	12,066	20,080	14,790	13,618	15,722	16,134	-26%	-32%	-22%	-20%		
3.1.6	- DUKE	9,056	14,642	12,287	12,400	11,646	11,270	-16%	-15%	-20%	-23%		
3.1.7	- OPT	0	0	1,186	1,219	1,128	0						
3.1.8	- C-Tran	0	1,557	3,708	4,009	4,434	4,508	138%	157%	185%	190%		
3.1.9	Total	81,288	132,358	185,784	185,892	210,583	216,386	40%	40%	59%	63%		
3.2	Rail												
4	Demographics Measures												
4.1	Population	375,052	551,362	551,362	551,362	551,362	551,362	0%	0%	0%	0%		
4.2	Employment	227,208	389,249	389,249	389,249	389,249	389,249	0%	0%	0%	0%		
4.3	Total Daily Trips	1,875,636	3,032,947	3,053,933	3,053,225	3,048,848	3,048,109	1%	1%	1%	0%		
4.4	Total Daily Work Trips	415,626	682,913	691,836	692,308	690,533	690,197	1%	1%	1%	1%		
4.5	Total Daily Non-Work Trips	1,460,010	2,350,033	2,362,096	2,360,917	2,358,314	2,357,911	1%	0%	0%	0%		

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